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2d Session

SENATE

REPORT
99-518

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION PROGRAM AUTHORIZATION ACT

OCTOBER 2 (legislative day, SEPTEMBER 24), 1986.—Ordered to be printed

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Mr. DANFORTH, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

together with

ADDITIONAL VIEWS

[To accompany S. 2708]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 2708) to authorize certain atmospheric and satellite programs and functions of the National Oceanic and Atmospheric Administration, and for other purposes, having considered the same, reports favorably thereon with an amendment in the nature of a substitute and recommends that the bill do pass.

PURPOSE OF THE MEASURE

The purpose of the bill is to authorize fiscal year 1987 appropriations for the atmospheric and satellite programs of the National Oceanic and Atmospheric Administration (NOAA)

BACKGROUND AND NEEDS

NOAA's atmospheric and satellite programs support NOAA's goals of protecting life and property through monitoring and predicting weather and environmental conditions, providing national and global environmental data and information products, and researching the properties and processes of the Earth and its atmosphere.

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The Public Warning and Forecast Services budget subactivity includes the collection, processing, and dissemination of weather and environmental information by the National Weather Service. NOAA develops and operates observation, data processing, and communications technologies to improve the timeliness and accuracy of forecasts. The Committee oversees these activities through hearings and authorizing legislation to ensure that NOAA's weather services are both cost-effective and sufficient in terms of technology and personnel.

The other component of NOAA's atmospheric programs is the Atmospheric and Hydrological Research subactivity. NOAA seeks to improve its ability to monitor and predict environmental changes by studying the natural and human-induced conditions and processes which cause changes to the Earth and its atmosphere. The Committee recognizes the importance of this research to the development of both ground-based and satellite technologies to monitor the environment, and the Committee carefully reviews proposed reductions in funding for the subactivity.

NOAA's satellite programs provide for the procurement, launch, operation, and data collection, processing, and dissemination associated with NOAA's satellite systems. NOAA is responsible for two weather satellite systems—the geostationary operational environmental satellite (GOES) system and the polar-orbiting environmental satellite system—and a land remote sensing satellite (Landsat) system.

NOAA normally operates two GOES satellites, which provide continuous coverage of most of the Western hemisphere from fixed positions over the Earth. GOES data are critical to the development of weather forecasts by NOAA. The premature failure of GOES–5 in 1984 and the loss of GOES–G in the May 3, 1986 Delta launch accident have left NOAA with only one healthy satellite in orbit and one more to be launched before a new generation of GOES satellites is developed. The administration has requested $118.5 million for development of the new satellites, which, if fully funded, will be prepared for launch in 1989 or 1990.

NOAA operates two polar-orbiting satellites, which supplement GOES for forecasting purposes, are key elements in global meteorological research, and represent the U.S. contribution to an international search-and-rescue program.

Landsat generates data which reveal details of the Earth's surface and are used in oil and mineral exploration, agriculture monitoring, cartography, hydrology, and forest management. NOAA is in the process of transferring Landsat to the private sector pursuant to legislation developed by the Committee. The administration has proposed to eliminate funding for Landsat commercialization. The Committee has reviewed this proposal and has discussed several options for proceeding with Landsat commercialization.

Legislative History

The Subcommittee on Science, Technology, and Space held a hearing on fiscal year 1987 funding for NOAA's atmospheric and satellite programs on April 15, 1986. Witnesses at the hearing included the Administrator of NOAA, the Assistant Administrator

for Weather Services, and the Assistant Administrator for Environmental Satellite, Data, and Information Services.

S. 2708 was introduced on August 1, 1986 by Senator Gorton. The Committee ordered the bill reported without objection, with an amendment in the nature of a substitute on August 7, 1986.

Summary of Major Provisions

The authorization levels in S. 2708, along with the fiscal year 1986 budgets and fiscal year 1987 administration requests for each subactivity, are summarized in the table below:

[In millions]

Section	Subactivity	Fiscal year 1986 [1]	1987 request	S. 2708
101	Public Warning and Forecast	$277.8	$274.5	[2] $317.0
102	Atmos. and Hydro. Research	64.3	60.3	64.3
201	Satellite Services	69.3	72.6	69.3
202	Satellite Systems	229.8	168.1	[3] 168.2
203	Data and Info. Services	22.1	22.7	22.1

[1] FY86 figures are after reductions pursuant to the Balanced Budget and Emergency Deficit Control Act.
[2] Includes no less than $42.5 million for NEXRAD development.
[3] S. 2708 provides $190.2 million, but includes $22 million already authorized for Landsat commercialization by Public Law 99-62.

Estimated Costs

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. Congress,
Congressional Budget Office,
Washington, DC, September 30, 1986.

Hon. John C. Danforth,
Chairman, Committee on Commerce, Science and Transportation, U.S. Senate, Dirksen Senate Office Building, Washington, DC.

Dear Mr. Chairman: The Congressional Budget Office has prepared the attached revised cost estimate for S. 2708, the National Oceanic and Atmospheric Administration Atmospheric and Satellite Program Authorization Act of 1986.

If you wish further details on this estimate, we will be pleased to provide them.

With best wishes,
Sincerely,

Rudolph G. Penner, *Director.*

Congressional Budget Office Cost Estimate

1. Bill number: S. 2708.
2. Bill title: National Oceanic and Atmospheric Administration and Satellite Program Authorization Act of 1986.
3. Bill status: As ordered reported by the Senate Committee on Commerce, Science and Transportation, August 7, 1986.

4. Bill purpose: S. 2708 would authorize fiscal year 1987 appropriations totaling $640.9 million to the Department of Commerce for atmospheric and satellite programs carried out by the National Oceanic and Atmospheric Administration (NOAA).

The 1987 authorization level is about $28 million above the 1986 appropriation (after the sequester pursuant to the Balanced Budget Act) and about $43 million above the President's budget request.

5. Estimated cost to the Federal Government:

[By fiscal years, in millions of dollars]

	1987	1988	1989	1990	1991
Authorization level	641				
Estimated outlays	436	173	19	13	

The costs of this bill fall within budget function 300.

Basis of estimate: For purposes of this estimate, it is assumed that S. 2708 will be enacted by early in fiscal year 1987 and that the full amount authorized will be appropriated. Outlays have been estimated on the basis of historical spending patterns for atmospheric and satellite programs.

6. Estimated cost to State and local governments: None.

7. Estimate comparison: None.

8. Previous CBO estimate: On August 15, 1986, CBO prepared a cost estimate for S. 2708 that inadvertently showed costs in the wrong fiscal years. This estimate corrects that error.

9. Estimate prepared by: Deb Reis.

10. Estimate approved by: James L. Blum, Assistant Director for Budget Analysis.

Regulatory Impact Statement

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

S. 2708, as reported, provides the vehicle to authorize appropriations previously funded pursuant to standing authorization and will result in no new regulatory burdens.

It will result in no additional regulation and will therefore have no further effect on the number or type of individuals and businesses regulated, the economic impact of such regulation, the personal privacy of affected individuals, or the paperwork required from such individuals and businesses.

Section-by-Section Analysis

TITLE I—ATMOSPHERIC PROGRAMS

SECTION 101.—PUBLIC WARNING AND FORCAST SERVICES

The Public Warning and Forecast Services subactivity includes the observation and data collection, processing, and dissemination activities of the National Weather Service. The technologies, services, and personnel of the National Weather Service are of critical

importance to NOAA's mission of providing timely, accurate weather information for the nationwide protection of lives and property.

Section 101(a) authorizes $317 million for the subactivity and section 101(b) states that $42.5 million of the authorization is only for development of the Next Generation Weather Radar (NEXRAD) program. NOAA is one of three agencies engaged in jointly developing NEXRAD, which will improve significantly the Federal Government's ability to monitor and predict severe weather conditions. The administration has requested an appropriation of $274,485,000 for Public Warning and Forcast Services and has requested that $47.5 million of the Federal Aviation Administration's Aviation Trust Fund be used to fund NOAA's share of NEXRAD development in fiscal year 1987. The committee notes that the proposal to use the Aviation Trust Fund has not been supported by the Congress. The Committee believes that fiscal year 1987 funding for NEXRAD must be included in the Public Warning and Forecast Services subactivity for NEXRAD development to proceed according to its established schedule.

The Committee strongly support timely NEXRAD development. NEXRAD will improve significantly the timeliness and accuracy of severe weather forecasts and warnings, contribute to aviation safety and efficiency, and provide important data for flash flood warnings and water resource management. The Committee supports the administration's request for NEXRAD funding and intends to establish $42.5 million as a minimum acceptable fiscal year 1987 budget to preserve the NEXRAD development schedule.

The administration has proposed to reduce funding for Public Warning and Forecast Preparation by $5,75,000. The proposed reduction includes elimination of NOAA's agricultural weather services and fruit frost warnings, reduction of fire weather services, and staff reductions at Weather Service Forecast Offices. The committee opposes these reductions and expects that the authorization level in S. 2708 is sufficient to restore funding for Public Warning and Forecast Preparation.

SECTION 102.—ATMOSPHERIC AND HYDROLOGICAL RESEARCH

The objectives of NOAA's atmospheric and hydrological research programs are to improve understanding of atmospheric and hydrological processes and to contribute to the development of ground-based and satellite technologies for monitoring and predicting weather and environmental conditions. The Atmospheric and Hydrological Research subactivity includes meteorological, atmospheric, solar-terrestrial, and air quality research.

Section 102 authorizes $64.3 million for the subactivity, which is the 1986 level after reductions pursuant to the Balanced Budget and Emergency Deficit Control Act. The administration has requested a fiscal year 1987 budget of $60,304,000 for the subactivity.

The Committee notes that the National Climate Program, which is part of this subactivity, already has been authorized for fiscal year 1987 at a level of $1,982,000 by Public Law 99-272, the Consolidated Omnibus Budget Reconciliation Act of 1985. The funds authorized by S. 2708 are in addition to the National Climate Pro-

gram authorization in Public Law 99-272. The administration's request for the subactivity includes a $1,148,000 request for the National Climate Program.

The administration has requested a net reduction of $5,340,000 in NOAA's meteorological research programs. The proposed cuts include a $2 million reduction in the Program for Regional Observing and Forecasting Services, termination of NOAA's funding for States' weather modification research ($2,250,000), and a $2,250,000 reduction in mesoscale convective system research. The administration also has requested a $1 million reduction in NOAA's funding of the Tropical Ocean Global Atmosphere program. The Committee supports these programs, and expects that the authorization in S. 2708 is sufficient to restore most of the proposed reductions.

TITLE II—SATELLITE PROGRAMS

SECTION 201.—SATELLITE SERVICES

The goals of the Satellite Services subactivity are to monitor the Earth's surface and atmosphere and to maintain operation weather forecasting and storm warning systems. The subactivity includes the operation of and data acquisition from the geostationary and polar-orbiting weather satellite systems and the Landsat system.

Section 201 authorizes $69.3 million for the Satellite Services subactivity. The authorization is approximately equal to the 1986 subactivity budget after reductions pursuant to the Balanced Budget and Emergency Deficit Control Act.

The administration has requested $23,604,000 for Landsat Operations. Although Landsat-5 is expected to operate beyond its nominal lifetime, which ends on March 1, 1987, the Committee assumes that the requested level for Landsat Operations is sufficient to operate Landsat-5 through fiscal year 1987. The Committee expects NOAA to inform the Committee of any changes in the status of Landsat-5 which alter the need for Landsat Operations funding.

SECTION 202.—SATELLITE SYSTEMS

Section 202(a) authorizes $168.2 million for this subactivity and section 202(b) states that $22 million of the funds authorized by Public Law 99-62 are provided for Landsat commercialization activities in fiscal year 1987. Public Law 99-62 authorizes $295 million for Landsat commercialization, to be expended by fiscal year 1989. $125 million of these funds were appropriated in the fiscal year Supplemental Appropriations Act, 1985 (Public law 99-88). Of the $170 million of the authorized funds that remain unobligated, the Committee supports the appropriation of no less than $22 million in fiscal year 1987 for Landsat commercialization. In addition to this $22 million, the Committee assumes that NOAA will be repaid $35 million paid to NASA for Landsat launch costs pursuant to an agreement which is no longer valid due to the uncertain status of NASA shuttle launches from the Vandenberg Air Force Base. The total level of activity assumed by the Committee in fiscal year 1987 for Landsat commercialization is $57 million.

The administration has requested $168,139,000 for NOAA's Satellite System subactivity. The authorization in section 202(a) tracks the administration's request.

The administration has requested $118,530,000 for procurement of a new generation of geostationary operational environmental satellites which is scheduled to be developed by 1990. The Committee is concerned that the premature failure of a GOES satellite in 1984 and the launch failure of its replacement on May 3, 1986 have jeopardized the continuity of the GOES system. The Committee believes that full funding of GOES procurement is necessary to minimize the possibility of a gap in GOES data. The Committee regards the GOES system as critically important to NOAA's weather forecasting and places the highest priority on the timely development of the next generation of GOES.

The administration has proposed to reduce funding for procurement of polar-orbiting satellites from $87,100,000 to $24,874,000 and to eliminate one of NOAA's two polar-orbiting satellites. The Committee expects only $24,874,000 of the funds authorized by section 202 to be appropriated for polar-orbiter procurement, but the Committee believes that this funding level is sufficient to maintain a two-satellite system because NOAA has not spent $65,000,000 already appropriated for polar-orbiter procurement. The Committee notes that the new polar-orbiting satellites will be needed by the end of the decade and the Committee is concerned that NOAA has not initiated procurement of the satellites. Section 202(a) includes language directing NOAA to continue launching polar-orbiters into two complementary orbits, and the Committee expects that the launch arrangements for the new satellites will reflect the use of two orbits.

The Committee is concerned about the uncertain future of Landsat commercialization. The Congress has authorized the phased transfer of NOAA's Landsat system to the private sector and established policy to guide the commercialization process, but the future of Landsat commercialization and continued U.S. involvement in land remote sensing is uncertain. The administration has proposed to eliminate funding for Landsat commercialization in fiscal year 1987.

The Committee is aware that NOAA has proposed to combine the Landsat system with the polar-orbiter system by placing Landsat and meteorological instruments on a shuttle-serviceable platform called Omnistar. The Committee has not seen this proposal, which has not been approved by the administration. NOAA, however, has modified its Landsat commercialization contract to reflect use of the Omnistar platform.

The Committee also is aware that the Landsat program can be continued by use of polar-orbiting (TIROS) spacecraft, which have been used for the first five Landsat satellites. Budgetary pressures and the need for continuous data availability have led to suggestions that NOAA should pursue rapid development of an inexpensive TIROS satellite to follow Landsat-5.

The Committee, while supporting continued funding for Landsat commercialization, believes that NOAA, the Earth Observation Satellite Company (known as EOSAT, which is the private consortium contracted to operate Landsat and develop a follow-on system),

and the administration must decide the type of Landsat system for which appropriated funds will be used. For this reason, the Committee directs the Administrator of NOAA to report by October 8, 1986 to the Committee on various scenarios under which fiscal year 1987 appropriations can be used to continue the Landsat commercialization process. The report should address both the prospective use of the Omnistar platform and the continued use of TIROS spacecraft, and the Administrator is directed to include within each scenario a discussion of:

(1) expected launch vehicles and launch costs;
(2) timing of spacecraft and instrument procurement;
(3) timing of launch vehicle availability;
(4) instruments to be carried on the spacecraft;
(5) prospective funding or other assistance from other Federal agencies;
(6) cost of spacecraft and instrument procurement and operation;
(7) changes in law or in NOAA's Landsat contract which would be necessary; and
(8) such other factors as the Administrator considers appropriate.

SECTION 203.—DATA AND INFORMATION SERVICES

The purpose of the Data and Information Services subactivity is to disseminate environmental data products. NOAA collects, processes, and disseminates atmospheric, solid earth, marine, and solar-terrestrial data through NOAA's own technologies and data from other agencies and foreign governments. NOAA provides data products to meet the needs of Federal agencies, the general public, private industry, science, and State and local governments.

The administration has requested a fiscal year 1987 budget of $22,734,000 for Data and Information Services. S. 2708, as reported, authorizes $22,100,000 for the subactivity. This authorization is approximately equal to the 1986 funding level for the subactivity after reductions made pursuant to the Balanced Budget and Emergency Deficit Control Act.

The Committee is aware that some of the activities within the Data and Information Services subactivity are funded by other agencies. The Committee directs NOAA to inform the Committee of the status of 1987 funding from other agencies for these programs, the probable timing of the funding, and any changes to the programs which will result from changes in funding levels or interruption in the availability of funds.

The Committee believes that the long-term storage, maintenance, and upgrading of global land remote sensing data, as required by the Land Remote-Sensing Commercialization Act of 1984 (Public Law 98–365), is of significant historical, scientific, and technical importance. Long-term preservation of land remote sensing data will be of special significance to future generations and the Federal Government has a responsibility to preserve these data.

The Committee acknowledges and commends the actions taken by NOAA and the U.S. Geological Survey to establish the National Satellite Land Remote Sensing Data Archive Program, and espe-

cially in defining and initiating a scientific scheme to acquire global satellite data. To that end, the Committee directs NOAA to provide the Committee, by March 1987, a technical plan for data acquisition and preservation, a schedule identifying target dates for implementing elements of that technical plan, and a plan identifying levels of funding, beginning in fiscal year 1988, for operation of the National Satellite Land Remote Sensing Data Archive and for acquisition of data for the Archive.

In addition, the Committee directs NOAA to begin in fiscal year 1987 the facilities and equipment modifications necessary for archive operations in fiscal year 1988.

Changes in Existing Law

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.

ADDITIONAL VIEWS OF MR. HOLLINGS

On July 17, 1984, President Reagan signed into law the Land Remote-Sensing Commercialization Act of 1984. The act permitted the U.S. civil land remote sensing system to be transferred from Government operation to private, commercial operation in an orderly manner with minimal risk. It had taken over 6 years for this Congress and the White House to agree finally on the best way to privatize the existing Federal land remote sensing satellite system (Landsat), and this was perceived as a signal that the commercial era of space had begun. Now this administration and the Office of Management and Budget (OMB) have decided to renege on this commitment to privatize the Landsat system and to forfeit U.S. technological leadership in land remote sensing.

Early in its life, the Reagan administration promoted Landsat commercialization—an initiative first proposed by President Carter. Its apparent support continued in 1984 when the President signed the Land Remote-Sensing Commercialization Act of 1984, thus endorsing transitional aid of several hundred million dollars to help bring about the shift from government to private control of Landsat. But when the administration and OMB are required to provide real money to facilitate Landsat commercialization, the support disappears. Only upon the initiative of the Congress in 1985, with a $125 million appropriation in the fiscal year 1985 Supplemental Appropriations Act for fiscal year 1985 and fiscal year 1986 Landsat commercialization activities, did the Hughes-RCA consortium, known as EOSAT, that won the competitive procurement obtain the money it needed to commence developing a commercially-viable Landsat system.

Now in 1986 we have seen another administration budget, the fiscal year 1987 budget submission, with draconian cuts in the nonweather programs of NOAA and still no support for Landsat. Despite all the early administration rhetoric in support of transitional aid, the fiscal year 1987 budget request provided not one penny for Landsat commercialization. This, despite the fact it was not until September 27, 1985, that the Department of Commerce and EOSAT finally signed a fixed price contract of $250 million, a contract brokered by OMB, to privatize the Federal land remote sensing program.

Speaking for the administration, NOAA Administrator Calio in his written testimony before this Committee on April 15, 1986, said that "No funds are requested to subsidize Landsat commercialization as this program principally benefits *special interests* and should be funded by those interests, not the Federal Government." (Emphasis added.) The facts run counter to this statement—the Federal Government, not special interests, forms 60 percent of EOSAT's customer base. By no stretch of the imagination can the Defense Department, Agriculture Department, and U.S. Geological

Survey (the prime Federal customers) be characterized as special interests.

At that same April hearing, the NOAA Administrator informed this Committee of his expectation that in "the next few weeks * * * we will be able to have a decision on the part of the administration as to whether we will move forward with [the Omnistar] proposal or whether we will stay with the existing program that was submitted in the present fiscal year 1987 budget request." (Omnistar is a serviceable space platform that EOSAT and Commerce agreed to substitute for the two TIROS free flying satellites provided for in the original contract. The Committee was not informed of this contract modification).

This Committee, despite reservations, has waited patiently for a decision concerning Omnistar. There have been encouraging reports of progress, but on the eve of fiscal year 1987 we have seen no sign that the administration intends to stand by its commitment to Landsat commercialization embodied in the 1984 act.

I frankly do not understand why the administration has chosen to abandon in 1986 the principles and findings that led to the passage of the 1984 legislation. What has happened to the administrations' desire for the United States to retain leadership in land remote sensing technology, to market land remote sensing data because of its economic importance, to put the Landsat system in the hands of a more efficiently and effectively run private sector operation? What has happened to the assumption that an orderly transition must be accomplished in phases and must be accompanied by transitional support (subsidies)? What has happened to the conviction that the private sector alone could not develop a land remote sensing system because of the high risk and large capital expenditures involved? What has happened to the determination that the national interest of the United States, both economic and national security interests, rests in maintaining international leadership in civil remote sensing and in broadly promoting the beneficial use of remote sensing data?

The Committee has been approached in recent days by the Departments of State and Defense concerning the value Landsat has for both national security and foreign policy. Yet OMB is steadfast in its decision to pull the plug and renege on its contractural agreement. At risk is not only the privatization of Landsat but the potential loss of a U.S. capability and a further signal to the private sector that the Federal Government is not a reliable partner. In this atmosphere, it would be foolish to think that the Federal Government will ever be able to privatize or commercialize existing Federal systems.

OMB's action is especially disturbing in light of the widespread recognition of the value of and the need for land remote sensing data and the awareness that U.S. leadership in this area is being severely threatened by the SPOT Image system subsidized by the French government. Landsat data is used by a broad mix of U.S. industries—mining, timber, oil exploration, and fishing, as well as Federal, State and local government agencies and universities. Landsat data can be used to monitor droughts in Africa or crop output in the United States or the Soviet Union. It also can be used by police and drug enforcement agencies to monitor the production

of illegal substances such as marijuana and cocaine. The worth of this data becomes more and more apparent each day since the emergence of a value-added industry. To abandon this industry now and to lose this important U.S. capability would be a disgrace and a further indication of our lack of resolve to compete in world markets. The land remote sensing industry is one of the few space-based industries that has immediate economic potential. Moreover, it provides a vital public good.

It is important that the United States not lose this capability and that we recognize our contractual agreement with EOSAT.

To that end, several weeks, ago, Senator Lautenberg and I requested that the Department of Commerce report to this Committee not later than September 15, 1986, as to options that could be resorted to by EOSAT, the cost of these options, and the potential launch vehicles that could be used. That deadline has passed, and the report still has not been submitted—another indication of the depth of this administration's support! There is still time for the administration to salvage Landsat privatization, but it requires that immediate submission of that concrete proposal and an amendment to its budget submission to address both transitional aid and launch costs. It is my hope that both the Departments of State and Defense will contribute to this process since it is quite clear that their willingness to provide additional resources or in-kind support could sway the final outcome.

It is clear to me that the world has a continuing need for earth observation data and the need will continue to grow in the private and public sectors. I intend to work to ensure that presence of a U.S. industry in this market and that the United States will not become dependent upon foreign sources for this data. The United States has been the leader in the development of land remote sensing technology, and it should retain that leadership in the marketing of Landsat data. That should be the goal of the Congress, and it should be the goal of this administration.

ERNEST F. HOLLINGS.

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